

Slime Lab: Recreating the Accident

INITIAL:

1. Observe the substances on the lab tray (50 ml of glue, 100 ml of water, and 1.0 ml of borax). Write down as many physical properties of each substance that you can observe and/or measure.
2. Predict chemical properties of each substance.

DURING:

Part I

3. Mix the 50 ml of glue with 50 ml of water in cup **a**: list the **new** physical and chemical properties. Did they change? Only list the ones that are new (Key words: solution, mixture, density, homogenous, heterogeneous). How did the density change?
4. Mix 50 ml of water with the 1.0 ml of borax (white powder) in cup **b**: list the **new** physical and chemical properties. Did they change? Only list the ones that are new. (Key words: solution, mixture, density, homogenous, heterogeneous). How did the density change?
5. Predict what will happen if you combine the two mixed substances (cup "a" and cup "b").

Part II

6. Slowly pour the borax/water in the glue/water stirring vigorously.
7. Take new substance out of the cup and knead in your hands.
8. Play with the new substance, observing properties and behavior.
9. Did any of the physical properties change? If so list, include mass, volume, and density.
10. With substance in a sealed bag, squeeze all the air out and drop in water tank. Observe the density. Does it match your calculations? Explain in complete sentences.
11. Did any of the chemical properties change? Predict new chemical properties (teacher will confirm predictions later as a class demonstration--these can not be tested at this point).
12. Give data of all properties that have been measured to teacher to record in class spreadsheet.

AFTER: (Teacher hands out class spreadsheet with all measurable data: temperature, mass, volume, and density).

Analyze the data on the class chart.

13. In general, what are the relationships among mass, volume, and density?
14. What did you observe concerning the heat energy of the new substance? Explain your reasoning.
15. Make at least five analysis statements about the data in the class chart. Is all the data congruent? Look for data among groups that stands out and explain why you think that particular data is different from the rest of the groups.
16. In what ways does this chart help you analyze the data more thoroughly?
17. Go to a computer station and create two different graphs representing your conclusions from the class chart.
18. Compare your data to the rest of the data on the class chart. Is your data valid? Why or why not? Give reasons if it isn't valid.
19. Name two physical changes and one chemical change that took place during this lab. Write in complete sentences and explain your thinking.
20. Compare the temperature changes that occurred during the lab. Explain the temperature changes scientifically.
21. Observe teacher demonstration on chemical properties of new substance. List the chemical properties that you observed.
22. Were your predictions on the chemical properties correct? Explain which ones were correct and which ones were not.

***Teacher note: Conduct a burn test on each substance individually and also the mixtures and new substance (slime). Show pictures of biodegradability of new substance (this needs to be prepared in advance). Show molecule structure of each substance (water: monomer, glue: polymer, borax: cross linker). Just give students toxic and combustibility reports.*